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Toxic Space and Time: Slow Violence, Necropolitics, and Petrochemical Pollution

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This article explores how time interacts forcefully with the experience of living within toxic spaces. Through ethnographic research and interviews with residents of a contaminated town in Louisiana, the article unpacks the uncertain temporalities of industrial pollution and potential means of resistance. Putting Mbembe's (2003) postcolonial treatise on necropolitics in conversation with Nixon's (2011) work on slow violence, the article examines the racialized, uneven, and attritional experience of petrochemical pollution in a former plantation landscape. By exploring the necropolitics of place, the article reveals how unjust exposure to toxic chemicals creates contemporary "death-worlds" that are experienced in temporally uncertain and constricting ways. The oppressive nature of uncertain temporality makes the material assemblages of petrochemical infrastructure daily environmental concerns. Yet by focusing on the lived experience of communities inhabiting this toxic geography, the article notes how witnessing gradual changes to the local environment has become a barometer for perceiving chronic pollution. The idea of "slow observation" is posited as a useful counterpoint to slow violence and the permanent wounding of toxic pollution. Slow observation is an important aspect of living with sustained environmental brutality and offers a potential means of political resistance and doing undone environmental justice. *Key Words: Cancer Alley, environmental justice, necropolitics, petrochemicals, slow violence.*

本文探讨时间如何强而有力地与生活在有毒空间中的经验互动。本文通过对路易西安那一座受污染的城镇进行的民族志研究与访谈, 拆解工业污染的不确定时间性, 以及可能的抵抗方式。本文让缅贝 (2003) 对墓地政治的后殖民专着与尼克森 (2011) 有关缓慢暴力的作品进行对话, 检视在一个过往的种植园地景中, 石化污染的种族化、不均且耗损的经验。通过探讨地方的墓地政治, 本文揭露对于毒性化学物质的不公暴露, 如何创造当前"死亡世界"被感知的时间上不确定且侷限的方式。不确定时间性的压迫本质, 让石化基础设施的物质凑组, 成为日常的环境考量。但通过聚焦居住在此一有毒地理中的社区生活经验, 本文注意到见证地方环境的逐渐改变, 如何成为感知经年累月的污染之晴雨表。本文假设"缓慢观察"的概念, 作为缓慢暴力和毒素污染的永久伤害之有用对比。缓慢观察, 是与持续的环境暴力共生的重要面向, 并提供了政治抵抗与恢復环境正义的可能方式。 *关键词: 癌症谷, 环境正义, 墓地政治, 石油化学, 缓慢暴力。*

Este artículo explora cómo el tiempo interactúa de manera contundente con la experiencia de vivir dentro de espacios tóxicos. Por medio de investigación etnográfica y entrevistas con residentes de un pueblo contaminado de Luisiana, el artículo desentraña las inciertas temporalidades de la polución industrial y los medios potenciales de resistencia. Al poner el tratado poscolonial sobre necropolítica de Mbembe (2003) en conversación con el trabajo de Nixon (2011) sobre violencia lenta, el artículo examina la experiencia racializada, desigual y contricional de la polución petroquímica en el paisaje de lo que fue una plantación. Al explorar la necropolítica del lugar, el artículo revela cómo la injusta exposición a los químicos tóxicos crea "mundos de muerte" contemporáneos que son experimentados temporalmente en modos de incertidumbre y constricción. La naturaleza opresiva de la temporalidad incierta convierte los ensambles materiales de la infraestructura petroquímica en preocupaciones ambientales diarias. Con todo, al enfocarse en las experiencias vividas por las comunidades que habitan esta tóxica geografía, el artículo hace notar cómo el atestiguar los cambios graduales impuestos al medio ambiente local se ha convertido en el barómetro para percibir la polución crónica. La idea de la "observación lenta" se plantea como contrapunto útil a la violencia lenta y al daño permanente de la polución tóxica. La observación lenta es un aspecto importante del vivir con una brutalidad ambiental sostenida, y ofrece un medio potencial de resistencia política y de aplicar la incompleta justicia ambiental. *Palabras clave: Cáncer Alley, justicia ambiental, necropolítica, petroquímicos, violencia lenta.*

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Along the River Road just north of St. James, a towering white petrochemical storage tank looks out across the Mississippi. Emblazoned on the side below the company logo it reads: "Relentless pursuit of an injury-free workplace." This corporate message hints at the potentiality of death that has always clung to heavy industry. This facility—just one part of a larger petrochemical assemblage near the town of St. James—has been responsible for the release of more than 15 million pounds of toxic chemicals into the local environment in the decade preceding 2016 (Environmental Protection Agency [EPA] 2016). Indeed, the health and safety slogan written large on the side of the tank belies other, less traceable and quantifiable concerns about well-being, health, and death for communities that live just beyond the fenceline. It foreshadows, too, a slower "state of injury" (Mbembe 2003, 21) that many claim to be suffering.

Recently, temporality has gained renewed significance in the geographical and environmental sciences. The idea of the Anthropocene, for example, uses time forcefully, by recasting climate change from a potential threat of the future to an actually existing present (Yusoff 2013). This focus on time has coincided with calls from geographers for "slow scholarship" (Mountz et al. 2015) as a means of resisting neoliberal academic pressures. Academics have also pointed to the limiting nature of fast research approaches (Whatmore 2009; Stengers 2011) along with wider calls for social science research to adopt a clearer "temporal gaze" (Adams 1998, 2000). Speed has been recognized as a key "toxic blind spot" (Mah 2017) in relation to environmental justice, where a new focus on the high velocity of real-time big data might overlook the gradual actuality of toxic experience. This article adds to this body of work by taking time seriously. It examines the role of time within communities exposed to toxic hazards and looks at the role of divergent temporalities in the experience of slow environmental contamination.

This article draws from ethnographic research in Cancer Alley, an area of chronic petrochemical pollution in Louisiana. I first discuss the concept of "slow violence" (Nixon 2011), before critiquing biopolitical and exceptionalizing accounts of such environmental harm. Linking this to geographies of environmental justice, I introduce necropolitics (Mbembe 2003) to theorizations of pollution, forwarding a postcolonial perspective that allows the slow brutalities of toxicity to be framed as the violence of "letting die." I then critically use these concepts to explore the ways in which local communities embody and experience long-term toxic pollution, drawing on ethnographic and interview data with people in St. James, a small, polluted town in one of the most environmentally contaminated regions in the United States. Through discussing the imposition of uncertain temporalities in day-to-day life, as well as the importance of slow understandings of incremental environmental changes, I reveal how communities slowly bear witness to pollution. By drawing on Berlant's (2007) work on the unremarkable nature of contemporary violence, I highlight how slow observation is a critical means through which polluted communities understand the lived reality of persistent environmental threats. Finally, reflecting on the idea of "undone science" (see Frickel et al. 2010; Hess 2016), I suggest that being able to harness slower registers of witnessing pollution could present new possibilities of doing undone environmental justice.

Time, Toxics, and Slow Violence

Temporality and toxics have a dialectical link. In an empirical sense, within the field of toxicology, time is an important factor that determines the level of bodily damage that a toxic substance can enact. A basic principle of toxicology, for example, is that duration of exposure to a toxic material, along with its concentration, can determine with clinical accuracy the dose–response. In other words, the longer an individual is exposed to a toxic substance, the more likely he or she is to be harmed. In everyday life, however, beyond clinical conditions and in the less controllable world of epidemiology, time creates significant ambiguity. Toxic materials are able to defer their harmful consequences across time and space, putting distance and uncertainty between a toxic hazard and the people it affects (Murphy 2013).

Social scientists have highlighted how toxic substances can also be attritional in the way they incrementally deposit damage in human bodies, sometimes over entire lifetimes (Auyero and Swistun 2009), even passing biological injury to future generations (Kowal et al. 2013). The way toxicants are slowly secreted allows such accumulations of pollution to be ubiquitous yet unrecognized, accruing harm over time yet also making it more difficult to epidemiologically and geographically locate blame. The spatiotemporal ambiguities created by toxic pollution are often met with long-term environmental justice campaigns,

community resistance, and citizen science (Allen 2003; Walker 2012; Ottinger 2013), yet can equally produce cases of widespread "toxic uncertainty" (Auyero and Swistun 2009), "quiet" or "resigned" activism (see Lora-Wainwright 2017; Pottinger 2017), or the complete immobilization and inaction of pollution-affected communities (Neumann 2016). Previous scholars have argued (see Beck 1992) that this nexus of science and uncertainty, action and inaction, makes pollution a highly politicized concept, with occasionally harmful and contested consequences.

Building on this, Nixon (2011) helped interpret how time interacts with environmental harm, through his concept of "slow violence," which he described as occurring "gradually and out of sight" (2). From climate change to chemical pollution, Nixon pointed to situations of harm being invisibly produced in nonspectacular ways, which are often intrinsically slow. He defined slow violence as "a violence of delayed destruction that is dispersed across time and space, an attritional violence that is typically not viewed as violence at all" (Nixon 2011, 2).

Despite limited engagement with slow violence thus far within human geography (cf. O'Lear 2016; Davies et al. 2017; Collard 2018), the concept has value in uncovering the slow and hidden brutality of certain spaces. In positing slow violence, Nixon builds on the work of Galtung (1969), who adeptly extended the concept of violence beyond direct physical contact between individuals to encompass the "structural violence" of suffering produced through the destructive capacity of uneven social conditions. Nixon reminded us how conventional violence is usually understood as immediate, explosive, and spectacular. Conversely, he framed slow violence as forms of harm that are neither instantaneous nor overtly dramatic, yet nevertheless have damaging consequences. Drawing on the work of Carson (1962) and Fanon (1963), among others, he pointed to the ability of pollution to accumulate harm over time, with a postponement of its destructive consequences. He also echoed Beck (1992) in stressing that marginalized groups are most vulnerable to the consequences of these slow environmental hazards. In the Anthropocene, exposure to some form of toxicity is an unavoidable and necessary part of everyday life, yet the discriminatory geographies of pollution ensure that certain populations are subjected to the power of death more readily.

Indeed, environmental justice—which is a focus of both scholarship and activism—has fixated on researching and resisting the inequitable impact and uneven spatiality of toxic threats and environmental disamenities (Boon et al. 2009). Environmental justice, which became prominent in the 1980s in the United States as a social movement and research agenda, is a hybrid of traditional social justice concerns (civil rights, equality, access, health) and environmental issues (Mah 2017). Many studies at the confluence of human geography and environmental justice have shown how toxic exposure is often predicated on racism and white privilege (Bullard et al. 2008; Walker 2012), making slow violence a key form of environmental injustice.

Theorizing Pollution: From Biopolitics to Necropolitics

How can we further theorize the slow violence of pollution? Scholarship on the health of populations often draws on Foucault's biopolitics (see Fassin 2009; Sparke 2014; Dhesi et al. 2017). For Foucault (1978), biopolitics incorporates a historical move toward the use of power to safeguard and regulate the lives of citizens who are deemed "legitimate" (Lemke 2011). Biopolitics can refer to the advent of states using an array of legal and bureaucratic apparatus to administer life, which can callously exclude unwanted populations from health provision. This modern shift away from direct and fast "make die" violence (Sparke 2014), such as the "murderous splendour" of capital punishment (Foucault 1978, 144), toward a subtler, more controlled and incremental form of governance, closely echoes the covert and gradual nature of slow violence. Indeed, the way environmental harms can slowly erode the health of marginalized groups can be "bloodless, technocratic, [and] deviously neutral" (Nixon 2011, 163).

Yet unlike biopolitics or other commonly cited theorizations of administered brutality, slow violence does not originate from a single exclusionary sovereign power but emerges from "a labyrinth of forces at work" (Mbembe 2001, 174). In an era of "high globalization" (Hulme 2016), the sources of environmental harm are often dispersed and entangled in a complex assemblage of corporate power, state authority, local regulations, and capitalist structures of accumulation (Harvey 2006; Appel et al. 2015; O'Lear 2016). In such conditions of neoliberalism, "there is no corporate or individual sovereign acting deliberately to implant qualities in a collection of bodies" (Berlant 2007,

765). The frequent absence of a cohesive sovereign authority in cases of dispersed environmental risk makes applying such theorizations to pollution more difficult. Although the "deferred causalities" (Nixon 2011, 61) of slow violence could, for example, be framed as postpollution *homo sacer* (Agamben 1998; see Davies 2013, 2015; Davies and Polese 2015), without a sovereign authority administering the violence, this biopolitical rendering falls flat.

Indeed, Berlant (2007) argued that the health of entire populations can be gradually eroded through the machinations of neoliberalism itself (see Butler 2009; Springer 2015; Tyner 2016). Like slow violence, her concept of "slow death" is not isolated in time-framed acts of obvious brutality but instead is hidden in long-term forms of harm, "whose contours in time and space are often identified with the presentness of ordinariness itself" (Berlant 2007, 759). In terms of environmental injustice, such as slow exposures to toxic substances, this prosaic "wearing out" (754) of populations over time is not biopolitically deliberate, yet it nevertheless produces unequal and often racialized experiences of slow pollution (Cantor 2017).

In essence, with cases of environmental injustice or slow violence, life is not being "*made* to die" in a Foucauldian (1978, italics added) sense, nor are individuals completely stripped of all political worth, in terms of becoming "bare life" (Agamben 1998). In fact, environmental justice campaigns rely heavily on appeals to the law and political rights to achieve justice (see Allen 2003). Instead, an alternative reading of slow violence is needed to help theorize the embodied experience of gradual environmental harm.

I suggest that Mbembe's (2003) work on "necropolitics" provides useful inroads into understanding contemporary experiences of pollution described in the empirical section of this article. Mbembe introduced necropower to encompass the "subjugation of life to the power of death" (39). This is more than the Foucauldian idea of the right to kill but rather the right to *expose* people to the possibility of death; in other words, not to *make* someone die but to *let* them (Li 2010; Tyner 2016). This subtle distinction between "make die" and "let die" violence goes some way to explain the experience of slow violence at the hands of an unlocatable, dispersed, and contested polluter. No one is being actively killed through pollution as a means of biopolitical control. Rather, communities who have been "designated expendable" (Nixon 2011, 151) are allowed to suffer the attritional violence of environmental pollution, often through the "violent inaction" of regulating authorities (Davies et al. 2017, 1281).

Using the example of the slave plantation, Mbembe theorized forms of violence that do not involve the outright killing of individuals but their slow biological degradation or wounding. He described how colonized bodies were "kept alive but in *a state of injury*" (Mbembe 2003, 21), which dovetails with the slow experience of pollution, often experienced in socially uneven ways and meted out following the shifting contours of race, class, and gender (Bullard et al. 2008; Zimring 2016). This permanent wounding of populations, without immediate or deliberate death, echoes the way in which slow violence interacts with marginalized and polluted bodies: the "casualties of accumulative environmental injury" (Nixon 2011, 144). Just as Mbembe's colonialized bodies were kept in a state of gradual injury through processes of imperial domination, Nixon's interpretation of slow violence shows how the uneven spread of globalization and pollution similarly keeps marginalized groups in situations and spaces of wounded subjugation.

Mbembe (2003) described the slow tenacity of necropolitical injury; how it can "persist for a long time, in the form of human shapes that are alive, to be sure, but whose bodily integrity has been replaced by pieces, fragments, folds, even immense wounds that are difficult to close" (35). The violence of environmental pollution, too, as Nixon and other scholars note (see Adams 1998), has this drawn-out temporal reach, which can penetrate the biological fabric of the blood, tissue, and bones. Environmental wounding such as chemical or nuclear exposure can be "driven inward, somatized into cellular dramas of mutation that—particularly in the bodies of the poor—remain largely unobserved, undiagnosed, and untreated" (Nixon 2011, 6).

Slow violence, then, can be read as a form of late-modern necropolitics, where communities are exposed to the power of death-in-life. It is a nondeliberate consequence of polluting industries that they expose subaltern populations (especially) to the experience of "death-worlds" (Mbembe 2003, 40). This is not the highly visible or spectacular killing of genocide or execution but rather a slower, stealthier, and less obvious form of brutality. Those most affected by the invisible and gradual harm of environmental pollution are "subjected to conditions of life conferring upon them the status of living dead" (Mbembe 2003, 40). Although slow violence entails a postponement of

harm, it is often also predicated by an entrenchment of long-standing social inequalities, rendering some groups more vulnerable to pollution than others. As geographers and environmental justice scholars have repeatedly demonstrated (Pulido 2000; Bullard et al. 2008; Walker 2012; Brahinsky et al. 2014), the distribution of pollution has a highly racialized dimension, which fits with Mbembe's postcolonial framing.[1] Putting race at the center of these geographies, polluting industries are often found in places that are "demographically legible as neighborhoods of color" (Brahinsky et al. 2014, 8).

Mbembe described how racialized bodies are exposed to miserable living conditions through a "state of siege" (Mbembe 2003, 22), which can be read in this article in the polluted postcolonial landscape of Cancer Alley. For some of the predominantly black communities located alongside petrochemical infrastructure, the everyday conditions produced through exposure to slow violence promote spatialized feelings of constriction and claustrophobia but also a temporal dimension of helplessness and slow observation. As McKittrick (2013) wrote on the persistent geographies of the plantation, contemporary racism "must be understood alongside complex negotiations of time, space, and terror" (3). Both Nixon (2011) and Mbembe (2003) incorporated slower temporalities in their framings of power and violence, which is of critical use when we explore how local residents experience, articulate, and understand environmental pollution in their everyday lives.

As the empirics of this article will testify, residents of polluted landscapes in former plantation regions of the lower Mississippi not only live in a contested death world but experience and interpret the environmental violence of their changing landscape and health patterns in time-focused ways. The gradual harms of pollution are also noted through what I term *slow observations*, giving local communities a more insightful register with which to understand and articulate their uneasy relationship with polluted space.

The Necropolitics of Place

One such necropolitical "death-world" (Mbembe 2003, 40) that brings together necropolitics and slow violence is the postcolonial landscape of the Louisiana–Mississippi Chemical Corridor, the site of this study. This stretch of heavily industrialized river between New Orleans and Baton Rouge contains one of the highest concentrations of petrochemical facilities in the Western Hemisphere. The eighty-five-mile long riverscape leads to the Gulf of Mexico and is home to seven oil refineries and 136 petrochemical facilities, as well as numerous rural, poor communities, populated predominantly by African Americans, many of whom descend from slaves who once toiled on sugar plantations along the river.

By the mid-twentieth century, many of these large plantations had been sold en masse to petrochemical companies, who took advantage of lax environmental and labor regulations, tax exemptions, cheap feedstock, and prime riverside access for oceangoing ships, the same physical geography that had attracted antebellum planters three generations earlier (Colten 2006; Mah 2015). As Dow Chemical—the largest petrochemical company in the state—proudly proclaim on their Web site: "Dow's operations in Louisiana began in 1956 with the purchase of four plantations" (Dow 2018). This widespread conversion of former plantations into chemical plants created a distinctly discriminatory distribution of toxic risks and contributed to a form of environmental racism that can be described as "petrochemical colonialism" (Bullard 1993, 13) or "toxic imperialism" (Walker 2012, 95).

Many African American communities located on land given to their ancestors after the abolition of slavery have been turned into reluctant frontline neighborhoods; their homes now abut some of the largest hubs of petrochemical real estate in the United States. As one environmental justice campaigner described in an interview, many families suffered a toxic inheritance from the historical geographies of slavery, "exchanging one plantation master for another." In this postcolonial landscape, such neighborhoods were essentially invisible to Louisiana's developers due to systemic racism (Colten 2012), becoming "unimagined communities" in the process (Nixon 2011, 150). As one African American interviewee, who lives opposite eight cylindrical petrochemical storage tanks, explained:

> The way the racism plays is that the majority of the chemical plants, wherever you go in this state, they are by the black communities. They never buy the whites and if they buy the whites they buy the whole community out.

This racialized geography of pollution along the Mississippi echoes Fanon's (1963) notion of "a world divided into compartments" (37), predicated on maximizing surplus value and limiting resistance. As another

participant described, the geography of pollution is "more of a prejudice thing. Because white folk—they got them out of here—and they left the blacks in." In both a metaphorical and geographic sense, the plantation therefore remains "a persistent but ugly blueprint of our present spatial organisation that holds it in a new future" (McKittrick 2013, 10).

The toxic smells, contested deaths, and gradual secretions of pollution have replaced more visible forms of violence, but tying these brutalities together are the malleable constructions of race and the shifting contours of necropolitical exclusion. Living alongside such a massive assemblage of petrochemical infrastructure, manufacturing plants, and sprawling agribusiness shapes everyday life in a variety of ways, not least in terms of health-risk perception (Singer 2011). Louisiana holds an unenviable position regarding health and by many measures is the most polluted state in the United States (Zebrowski and Leach 2014). It has the forty-seventh worst health among the fifty states and 10,614 years of potential life lost before the age of seventy-five per 100,000 people (United Health Foundation 2009). Some parishes that line this industrial corridor, including the location studied here, are in the top 10 percent of counties in the United States for number of toxic air and water releases (Singer 2011).

The high concentration of petrochemical infrastructure and racialized experiences of pollution have given the region a notorious reputation for illness. The existence of such high levels of pollution in such a concentrated and racially compartmentalized geography can be read as an act of "letting die" (see Li 2010; Tyner 2016). Such is the stigma of this industrialized landscape for poor health and increased mortality among its inhabitants that the region is commonly referred to as Cancer Alley (Huber 2017). Unlike other contested environments of pollution, where critical rhetoric is used ironically to emphasize the agency of inhabitants and their adaptation to risk (see Stawkowski 2016), here Cancer Alley renders the region a necropolitical threat and can be contrasted to the more anodyne phrase preferred by industry, of the Chemical Corridor (Colten 2006). Place, therefore, as well as the complex socioenvironmental entanglements of power, class, and race, subjects residents of Cancer Alley to the injurious threat of death-in-life (Mbembe 2003). Interviewees often expressed perceptions of increased mortality and biological damage from living in the region. As one respondent articulated, "There are a lot of widows around here. . . . It's the impact of industry . . . diabetes, lung cancer, stomach cancer, pancreatic cancer." The popular health risk perception of illness created by industry in this area includes a diverse range of maladies, echoing the wounding nature of necropolitics and being held in a state of permanent injury (Mbembe 2003):

> A lot of people are coming down with respiratory disease and especially cancer. Around here there are a lot of people that have cancer. It's just terrible. And a lot of people—everybody gets sick! (St. James resident)

Other residents made the connection to place and death more explicit still; for example, one participant stated bluntly, "If you stay here you die, that's the bottom line."

Most geographical scholarship employing necropolitics as a critical lens has focused on politically dispossessed subjects (McIntyre and Nast 2011; Lesham 2015; cf. Alexis-Martin and Davies 2017), such as refugees (Davies et al. 2017) and undocumented migrants (Davies and Isakjee 2015; Round and Kuznetzova 2016). Here, though, I wish to stress the necropolitics of place, how certain places, polluted through the slow violence of environmental denigration, are rendered death worlds, exposing some inhabitants to violent experiences of pollution and the denigration of living conditions. This has connections to the Orwellian concept of environmental "sacrifice zones" (Lerner 2010), yet by employing the necropolitics of place I wish to make the exclusionary and discriminatory notion of *let die* violence more explicit. In this sense, living in close proximity to polluting petrochemical industry leaves some individuals and communities in these contemporary postcolonies "wasted—and exposed to waste—as part of neoliberalism's totalizing mode of production" (Davies et al. 2017, 1275). If Mbembe (2003) talked of the plantation and spaces of apartheid as landscapes of "peculiar terror" (22), it is fitting—in light of slow violence—that we extend attention to spaces of pollution as important sites of contemporary cruelty and letting die. By bringing together the work of necropolitics and slow violence, we can see how "the plantation uncovers a logic that emerges in the present and folds over to repeat itself anew throughout black lives" (McKittrick 2013, 4).

Since the 1980s, Cancer Alley has become a focus of sustained environmental controversy as well as notable environmental justice campaigns. Sociological and Science and Technology Studies (STS) research on the region has tended to focus on local victories for

environmental activists, highlighting examples of successful citizen-science movements, bucket brigades, relocation lawsuits, or fruitful collaborations with scientific experts (Allen 2003; Ottinger 2013). Taking a lead from recent geographical scholarship, however (Pottinger 2016), I suggest that the industrial corridor can be characterized more accurately by a far more apolitical situation of "resigned activism" (Lora-Wainwright 2017), where everyday toxic hazards are largely uncontested, being so all-pervading, uncertain, and sublime as to become internalized (Shapiro 2015). This is not to say that communities are indifferent to the contested threats of pollution—the myriad claims of bodily harm associated with Cancer Alley testifies to that—but it is notably rare for toxic uncertainty to be translated into meaningful legal action or challenges to the compartmentalized geography of this industrialized space. Environmental justice victories in Louisiana and other polluted regions are therefore the exception rather than the rule, and collective inaction is a far more common occurrence (Shriver and Kennedy 2005; Auyero and Swistun 2009; Neumann 2016).

Examining cases of environmental justice victories risks overlooking the "banal forms of disadvantage" (Whitehead 2009, 669) that often persist with cases of environmental injustice, and there have been repeated calls within human geography for increased focus on the everyday experience of pollution (Hobson 2006; Bagelman and Wiebe 2017; Milbourne and Mason 2017). Just as STS scholars have pushed for a focus on the politics of "undone science" (Frickel et al. 2010; Hess 2016), so, too, might we consider the everyday realities of undone environmental justice. Although Cancer Alley is arguably one of the most prominent sites of environmental justice activism and research (Allen 2003; Mah 2015), even here cases of environmental injustice abound, with countless overlooked communities remaining exposed to unfair levels of toxic chemicals and environmental justice being uneven or simply undone. Cases of overt political resistance are doubtless interesting, but a focus on infrequent environmental justice triumphs feeds into a "temporalities of crisis" (Berlant 2007, 764) framing that overlooks the slower, less visible, yet omnipresent actuality of everyday toxic exposure. This study responds to calls to shift attention beyond these exceptional and politicized environmental campaigns (Neumann 2016; Huber 2017), to access nonspectacular and more quotidian understandings of necropolitical pollution, thus attuning itself more readily to the framework of slow violence.

This study also builds on and extends the existing political ecology literature on oil, which has often discussed the shifting temporalities of petrochemicals (Limbert 2010; Rogers 2015; Huber 2017), as well as the material assemblages of chemical infrastructure (Appell 2012; Rodgers 2012; Rodgers and O'Neill 2012; Barry 2013; Larkin 2013; Appell, Mason, and Watts 2015; Landa 2016; Folkers 2017). Huber (2013), for example, drew attention to the unique temporality of fossil fuels, noting how they represent the biological compression of deep time. Other scholars, too, have highlighted how petrochemical landscapes produce "distinctive temporalities" (Rogers 2015, 367), as well as how the temporal trope of booms and busts have greatly influenced these spaces (Watts 2001; Appel et al. 2015). Time has been explored through sensitive anthropological work, including *In the Time of Oil* (Limbert 2010, 11), where Oman's uncertain petrochemical past, present, and future is explored through the notion of a "dreamtime." Geographers, meanwhile, have drawn on Massey's (2005) language of *time-space* to articulate how petrochemical geographies, such as the landscape of south Louisiana, can become "oil frontiers," which "contain [their] own specific configuration of time, space and power" (Watts 2015, 215).

From the artificial temporalities of oil markets (Johnson 2015; Watts 2015), to petroleum's geologic timescapes (Le Billon and Bridge 2017), to the temporal specter of "peak oil" (Bridge 2010; Hemmingsen 2010), the space and time of petrochemicals continue to be of great interest to human geographers. What is less explored, however, is the role that time plays within communities that are themselves surrounded by the "infrastructural guts" (Appel et al. 2015) of the oil and gas industry. This article addresses this gap by examining the relationship between temporality and pollution for a frontline community.

Living with Pollution in St. James

The empirics from this article are drawn from ethnographic research between 2015 and 2018 with an archetypal fenceline community in Cancer Alley. Semistructured interviews with twenty-five individuals, including local residents and environmental activists, inform the study. Access to participants was achieved through attending church and community groups, as well as snowballing from interviews with environmental justice campaigners, following a

previous pilot study for this project in 2013. There is a long history of church–environmentalist coalitions in the United States, and although this case study represents a relatively inactive case of "undone" environmental justice, the church plays a central role in African American communities and identities in the local area (Ottinger 2013). The study was also informed by "elite" interviews with legal experts, representatives from petrochemical companies, environmental lawyers, and corporate lobbyists. These interviews and participant observations were conducted across southern Louisiana, primarily in St. James Parish, on the western bank of the Mississippi, thirty-five miles from Baton Rouge.

Previous research demonstrates that polluting industries in St. James Parish are located in areas with the lowest average household income, the lowest educational attainment, and highest percentages of African Americans (Blodgett 2006). At the time of research, St. James town had a population of 877, of whom 92.6 percent were African American (U.S. Bureau of the Census 2016). The small rural municipality, which is hemmed in by the Mississippi levee on one side and flat sugarcane fields on the other, is economically marginalized, with roughly one in five people living below the federal poverty line (U.S. Bureau of the Census 2010). It is also a highly polluted "oil frontier" (Watts 2015, 220) where hazardous materials are regularly leaked into the local environment from a wide range of petrochemical facilities. Over 755,000 tons of air pollution were released in St. James Parish in 2015, with the Toxic Release Inventory[2] listing the top five chemicals spilt as ammonia (31 percent), methanol (31 percent), styrene (9 percent), ethylene (3 percent), and benzine (3 percent; EPA 2016), which are all associated with petrochemical production. A further 38,200 pounds of water pollution were also released from various local chemical plants in the same year, consisting primarily of ammonia (93 percent), as well as compounds of zinc (3 percent) and nickel (3 percent). The density of heavy industry is startling, with a highly racialized geography: Countywide, 70.6 percent of the total minority population in St. James Parish live within one kilometer of a polluting facility, compared to 23.11 percent of whites living within the same distance (Wright 2003).

Figure 1. Chemical storage tanks viewed from the backyard of a participant in St. James, Louisiana. *Source*: Photo by author. (Color figure available online.)

Neither a classic company town nor a site of prodigious political activism, St. James is a model example of a place where "cohabiting with toxins" is an unavoidable part of everyday life (Shapiro 2016, 382). Here it provides an important context for discussing the ways in which instances and durations of slow violence are understood by inhabitants of a polluted landscape.

The necropolitics of this landscape reveals itself in the words of its inhabitants, who regularly discussed the threat of death and injury at the hands of an inviolable polluter. As the final empirical section shows, however, the necropower of pollution is not confined to the bodies of fenceline community members but also in their slow observations of their local environment and in their memories of the landscape incrementally changing over time. First, though, I explore how the spatial and temporal constriction of heavy industry contributes to the gradual wearing down of populations through slow violence.

Toxic Infrastructure and Constricting Temporalities

> Person A: We know we're gonna die, just here you die a little quicker!
> [Laughter around the room]
> Person B: A lot quicker and miserable, cuz it's gonna make you sick!
> (Group interview, St. James 2015)

During interviews and focus groups, participants often described feelings of being physically constricted by the amount of heavy industry in St. James. Living alongside this sprawling "oil assemblage" (Watts 2015, 221) had severely affected people's sense of place, and interviewees regularly discussed how they felt "trapped" by the entanglements of pollution and petrochemical infrastructure: the pipes, the freight trains,

the storage tanks (Figure 1), and the deep water docks just beyond the levee. For many participants in St. James, the affective "work of infrastructure" (Landa 2016, 2) produced negative emotions. One participant, for example, described being "buried so deep" by the presence of chronic pollution and toxic artefacts, with another remarking, "We're right in the middle of all this mess!" Descriptions of disconcerting toxic smells added to this sense of siege and constriction, as did accounts of loud noises and earth tremors that shook the foundations of buildings.

Participants showed me church doors and wooden houses that were slowly cracking from industrial vibrations and subsidence. One elderly interviewee described how "it's shaking me off the pillars, off the joists . . . it sounds like your house about to fall down on you." For these residents, the harmful reach of heavy industry extended far beyond the implicit invisibilities of toxic pollution. Living with pollution was invasive, yet also mundane, entangled in the minutiae of day-to-day existence; from the routine exposure of disturbing toxic odors that often appeared at night, to the large dispensers of drinking water in the kitchens of many participants due to a widely held perception that tap water was contaminated.[3] The slow violence of the petrochemical industry had penetrated everyday life, trespassing into permeable domestic spaces and creating claustrophobic accounts of petrochemical's more-than-toxic presence (see Biehler 2009). Descriptions of being able to "hardly breathe" further embodied the stifling nature of pollution and the capacity of contaminated air to infiltrate the human body (Choy 2011; Engelmann 2015; Shapiro 2016). This corporeal engagement with petrochemicals also resembles what Valdivia (2018, 551) called the "embodied political ecology of oil flow." At a monthly community meeting, one local resident proclaimed, to the agreement of many others in the room, "It's like we are surrounded—we're penned in on all sides!"

Yet it was not just the spatial constriction of the petrochemical infrastructure that emerged during interviews with residents. Of particular note was the important role that time played in the experience of petrochemical pollution. This manifested itself in a number of ways. Several participants described how they did not know whether—or when—more industrial infrastructure would be constructed in St. James, which made people feel uneasy. As one participant explained, "We don't know what they gonna do with the land, we don't know when they're gonna do it next week, we don't know if they gonna do it next month" (Burnet, early sixties). Burnet, who has lived in St. James her whole life, detailed how the unpredictable temporality of infrastructure worsens her sense of frustration at the amassing presence of heavy industry:

> What you see, is you see a truck going back and forth. Then if you pass there at night you might see maybe a light post. You pass back the next month you might see a [chemical storage] tank, OK? You pass back a week later—a fence. And then you're gonna see a "No Trespassing" sign. And after a while you've got a full blown plant!

Scholarship ranging from actor-network theory (Latour 1993) to new materialism (Bennett 2010) has highlighted the significance of infrastructures as political concerns (Appell 2012; Rodgers and O'Neill 2012; Barry 2013; Larkin 2013; Murphy 2013; Folkers 2017). Yet here, it is the oppressive nature of uncertain temporality that makes the material assemblages of petrochemical infrastructure an everyday concern. The incremental way in which new infrastructure appears under the noses of local residents, and without prior warning, adds to the sense of constriction and irritation expressed by many. Another participant lamented the inaction of the EPA, which in his view was too slow in monitoring the expansion of new industrial infrastructure:

> It's a slow process. . . . We're gonna do it tonight . . . we're gonna do it next week . . . we're gonna do it next month. "Oh they didn't say they were gonna build this"—Well you should have been on top of them!

Other participants, too, lamented the impotence of state agencies, such as the Louisiana Department of Environmental Quality (DEQ) and the Army Corps of Engineers. For example, an environmental lawyer described a "revolving door" system of employment between regulators and the oil industry in Louisiana: "When the governor sets the policy for his agencies . . . you get the sense that the policy is 'use kid gloves,'" he explained. Documents obtained through a public records request show how petrochemical companies in Louisiana sometimes draft public notice statements about industrial infrastructure, which are presented as if written by the DEQ and the Army Corps of Engineers (Center for Constitutional Rights 2018). This apparent collusion between heavy industry and various arms of the state contributes to the production of slow

violence. Such complicity, or "agency capture," has resulted in lackluster enforcement of environmental regulations and can be read as an insidious form of "state abandonment" (Braun and McCarthy 2005, 805), where—just like in post-Katrina New Orleans—marginalized groups suffer the most.

Echoing the attritional nature of environmental slow violence, the increasing infrastructural presence in St. James was discussed as a slow creep, only noticeable through everyday surveillance: "We think it's slow, but it's already going," described one participant, clicking her fingers for emphasis. The temporality of local industry had run ahead of day-to-day life. In other words, time became another register through which local residents felt besieged, echoing the necropolitical "state of siege" suffered by colonized subjects (Mbembe 2003, 30). In this way, time is conceived as an external element foisted on populations through "the imposition of industrial time on the rhythmicity and pace of ecosystems" (Adam 1998, 9). As another participant emphasized during a focus group, "We don't find out that something is *going* to happen to us—it's already happened!" From sightings of trucks, to fences, to signs, to "full blown" chemical plants, the cumulative creep of new infrastructure serves to spatially and temporally surround participants' lives. Necropolitics can be conceived as a "violence being administered to a particular group through constriction" (Davies et al. 2017, 1269). In St. James, where the slow brutalities of environmental harm are an ever-present threat, this constriction has distinct temporalities.

The attritional expansion of petrochemical facilities—comparable to what Nixon (2011) termed "infrastructural invasions" (42)—works in a different time frame than the everyday lives of participants: strategically drip-feeding more industrial artefacts into the local landscape until it is too late. This coercive use of time also extended to accounts of toxic exposures, too, with participants describing the ebb and flow of toxic releases. Some interviewees discussed how local chemical corporations deliberately wait until favorable weather conditions before releasing toxic chemicals into the atmosphere at the optimum moment:

> [They] let all this fume in the air and it seems like a cloudy day like today, but if it looks cloudy you ain't gonna be able to see nothing cuz that gives them a good excuse to emit all that in the air. . . . That's a great cover-up for them.

These stories of encountering pollution are laced with mistrust in local industry and have a clear temporal dimension: the perceived strategic timing of chemical releases—in line with local weather patterns—reflect the widely held perception that the petrochemical industry was somehow conniving or deceitful. Some community members in St. James had attuned themselves to the temporalities of exposure, knowing when toxic releases would be more likely to occur. This form of local expertise was aided by the fact that many had previously worked in local chemical plants or had relatives that still do. For example, one participant received information about a chemical release via her family:

> My daughter used to work at the [chemical] plant and my daughter said, "Mama, they had an accident last night. They weigh so many gallon of benzene in the water." . . . They've been doing it, but we didn't know and look at all the years we've been drinking that water and we didn't know!

Other participants described how local chemical plants wait until night before releasing hazardous gas, exposing then to disconcerting smells while they sleep, causing strange odors when they wake up in the morning. This saturating capacity of slow violence—seeping into domestic spaces during the night—reflects Mbembe's treatise on the all-encompassing nature of postcolonial cruelty, a violence that "does more than penetrate every space: it pursues the colonised even in sleep and dream" (Mbembe 2001, 175). As one participant explained:

> Oh it's awful, you be sleeping and you smell this—I knew I don't have gas, I have electric. And they got be so potent in your house, and I think, "Oh my God, I forgot to turn the stove off!" and you jump, "Oh gosh!" But it's so strong you can hardly breathe.

Although some harmful chemicals remain beyond the reach of human senses, participants described toxic gas from local industrial plants as smelling like rotten eggs, putrefied meat, sewers, acid, or nonspecific chemical aromas, reflecting the gradual intensification of "sensory siege" within acts of slow violence (Hesse 2017, 1). These accounts of nocturnal interactions with pollution are clear ruptures in the rhythms of day-to-day life. Yet the regularity of exposure was also noteworthy. The rhythmic nature of these confrontations with uncertain toxic releases, instead of being normalized into begrudging acceptance and inurement, were themselves felt as damaging and repressive. Participants articulated how they

Figure 2. A participant picks at a pecan nut she found near her home in St. James, while she describes how pollution is slowly changing the local vegetation. *Source*: Photo by author. (Color figure available online.)

were frustrated by the cyclical nature of living with pollution, reflecting the attritional capacity of slow violence and "the accelerated time of petro-modernity's primitive accumulation" (Nixon 2011, 80). At a monthly community meeting, for example, one participant complained: "The number of times in the morning I open the windows and it smells bad," to which another responded, "You don't have to *open* the windows in my place!" Adding to this picture of everyday toxic confrontation, others gave similar accounts of reluctant interactions with the materiality of pollution as part of their daily routines: "The number of times in the morning that I can write my name on the car, there is all this dust from across the river."

Being habituated or attuned to the rhythms of pollution did not make it easier to ignore. In other words, the imposition of external temporalities became another means through which local inhabitants were made to feel vulnerable. The repetitive nature of toxic encounter also corresponds with the notion of populations being gradually worn down (Berlant 2007), not through dramatic individual events with their "spectacular temporality" (755) but through the creation of perpetual environments of slow death, "which occupies the temporalities of the endemic" (756). Although inhabitants who have lived alongside petrochemical infrastructure in St. James for decades did have stories of spectacular toxic events, such as chemical storage tanks catching fire during lightning strikes or local spills of crude oil, it was the mundane, banal, and repetitive encounters with pollution that were most apparent in the interviews. This also follows Berlant (2007), who described experiences of neoliberalism as "simultaneously an extreme and in a zone of ordinariness, where life building and the attrition of human life are indistinguishable" (754). Exposure to toxic threats and the imposition of uncertain temporalities works attritionally against people in St. James, with everyday life becoming indistinguishable from, and enmeshed within, the slow violence of pollution.

If this empirical section attends to the rhythmic, more forceful interactions with infrastructure and toxicity, such as being awoken by strange smells, or sudden realizations that new industrial infrastructure has been built, the next section describes a slower temporality that local residents themselves are able to access, harness, and observe. In combination, these empirical sections demonstrate how fast *and* slow forms of environmental brutality expound the lived experience of pollution.

Witnessing Pollution: Slow Observations and Changing Toxic Environments

Many participants described how they have noticed the local environment changing incrementally over time. "It probably wasn't that noticeable back in the 80s," explained one interviewee, "but [then] you started noticing, you know, a decrease in things." She then described how—over the last thirty years—trees have begun to bear less fruit, as the whole neighborhood became less verdant. The changing color of the leaves on the trees was also noted by several other participants, who described the shade of shoots shifting from green to orange or fruit not ripening and becoming "yellow greenish" (Figure 2). As one interviewee explained, "It's like they are sick. It's not as green as it used to be. The whole environment is different." Many described how their gardens were no longer as fertile as they once were. One participant, who had lived in St. James since the 1950s and had seen local chemical plants grow, change hands, and expand, also detailed how the vegetation had visibly transformed:

> They're not as green. If you go to a place that doesn't have a lot of chemicals, you can really see the chlorophyll. It's not the same in the leaves and stuff, you don't get that here.

Others noted unusual changes in the patterns of wildlife, noting how there are fewer birds, grasshoppers, toads, and frogs: "Bullfrogs! I haven't seen those for *years!*" recounted one interviewee during a focus group: "You hardly see any at all. You used to see toads crawling up the yard," responded another participant. Conversely, interviewees also noted how there were

increased numbers of other animals, such as ants and alligators: "They had one about as long as this table," explained one elderly interviewee, pointing out her window toward the tracks where freight trains offload their petrochemical cargo: "We had never seen alligators coming up this way, but since they started that—they put, I think it's like three railroads back there, to come into these ports." She explained how the alligators, who used to live in the nearby bayou to the west of St. James, have had their habitat disrupted by local industry: "They're looking for water . . . we had never seen that before," she explained.

Some were more ardent in their descriptions of the changing local ecology, lamenting the impact of toxicity on local wildlife, their descriptions of environmental pollution laced with a necropolitical specter of death: "They're killing everything around it. . . . It's the atmosphere . . . like, if you plant butter beans you might get a handful, you know? It's not plentiful because of the air, the stuff that's polluting everything." Others harked back to memories of how the local environment used to be, remembering and retelling how toxic contamination had changed their neighborhood's environment. Participants described how pollution had limited their interactions with wildlife, such as watching the birds roosting in the nearby woods, peeling home-grown pecan nuts by the fire in late October, catching crawfish in the ponds by the levee in the spring, or fishing in the Mississippi. "We used to fish. And eat the fish," explained one longtime resident of St. James:

> You go and eat fish today! When you get that fish out the river and you cut that fish open you can see that jelly. . . . That's the oil in there and you can kind of like smell it a bit, too.

Some memories of the changing environment looked back to a time before heavy industry was present in the area and made the slow violence of pollution more explicit. For example, several respondents gave accounts of trees gradually dying:

> My daddy had orange trees and we would, when I got married I planted some orange trees in the garden. The orange trees died. Plum trees and all that died. Peach trees. Yes, they died. But years ago when we used to have them when I was a little girl, we had those things. They didn't die.

At one community meeting in St. James, where topics ranged from tornado evacuation plans to church fundraising, as well as the usual dialogue about pollution, the reverend gave a sermon-like address. His speech sounded like something from Carson's (1962) formative book *Silent Spring*, complete with descriptions of birds avoiding St. James and the threat of biological damage:

> We don't even see a robin no more, but if you go on that end toward Donaldsonville you will see the robins, but they're not coming here because of the environment. And as simple as a bird, a bird that knows where to go and he knows where he can live at, so he knows he can't live here, so he's going that way where he can live. . . . So, if it's affecting our trees, our animals, what do you think it's doing to you?

To outsiders the gradual changes to the flora and fauna in St. James might appear to be in a "zone of ordinariness" (Berlant 2007), as uneventful, imperceptible, or invisible, but through the slow observations of local inhabitants, these incremental changes were very apparent. The natural landscape had changed through piecemeal alterations to leaves, frogs, and fruit; noticing the slow denigration of the environment has become a key means of observing the impacts of pollution. A different, slower temporal register has enabled residents of St. James to picture environmental violence in a clearer and more controlled manner. Indeed, over the years, inhabitants of St. James have become slow witnesses to environmental violence.

For communities in polluted areas, toxic spaces have shifting temporalities, both quick and unpredictable, such as the sudden emplacement of new industrial infrastructure, and temporally gradual, such as the slow drip of deteriorating environments. Communities that are able to slowly observe the accumulation of environmental change over time, however, are able to "humaniz[e the] drawn-out threats inaccessible to the immediate senses" (Nixon 2011, 15). Such "bodily reasoning" (Shapiro 2016, 368) that people exposed to pollution can use to understand environmental risk has a clear temporal dimension, where slow changes to the local environment are used to make sense of toxic spaces.

Discussion and Conclusion

This article has brought together work on slow violence (Nixon 2011) and necropolitics (Mbembe 2003), to interrogate the experience of environmental injustice. The forms of environmental brutality

outlined in this article not only have distinct temporalities but are also preventable if more environmental regulation was enforced. Therefore, such environmental injustice can be framed as a form of "let die" violence (Li 2010; Tyner 2016; Davies et al. 2017), where subaltern groups in this postcolonial landscape are allowed to suffer the indignity of pollution and are subjected to necropolitical spaces of contamination that are akin to "death-worlds" (Mbembe 2003, 40). In other words, slow violence can be read as a form of late-modern necropolitics, where marginalized communities are exposed to the power of death-in-life.

Like in other polluted geographies, toxic pollution in Louisiana enacts its violence in temporally uncertain ways, yet local communities are often able to witness this environmental harm, employing their own temporal registers. Mbembe (2003) wrote that victims of necropower "maintain alternative perspectives toward time" (22), and many of those in St. James who have been exposed to decades of slow violence are able to notice these gradational changes in their local geography. The fenceline residents who have been exposed to slow environmental harm have also lived in step with incremental ecological demise.

As Murphy (2013) argued, toxic pollution is able to defer its harmful consequences to the future, yet this article demonstrates how gradual processes of pollution can be closely observed by the potential casualties of environmental injustice. Foreshadowing Nixon's treatise on slow violence, Adams (1998) reminded us that "a large proportion of the processes associated with the most difficult environmental problems tend to be inaccessible to the senses, invisible until they materialise as symptoms" (12). In the empirical examples in this article, however, the symptoms of slow violence have gradually revealed themselves to the St. James community, who are able to draw on their own alternative slower temporalities. Importantly, the way in which local communities notice these piecemeal changes—unseen to outsiders—affords them a deeper insight into pollution. Although these narratives of pollution are laced with loss and sadness, there is also some agency to be found in the ability to slowly bear witness, to notice these changes to the zone of the ordinary (Berlant 2007), which are often overlooked and unrecognized.

Both slow and fast forms of environmental violence can coexist within toxic spaces. The quick temporalities inflicted on residents of St. James—in the form of unexpected infrastructural expansion, nocturnal toxic smells, or sudden earth tremors—run in parallel to decade-long exposures to slow injury, where fruit trees, alligators, and family illness all become barometers for pollution. These slower observations of the changing local environment allowed participants, in a very small way at least, to be the ones in control. The everyday surveillance of gradually cracking door frames and the toxic attunement to repetitive chemical odors all contribute, over time, to knowledge about pollution. To be able to see, observe, and notice how the presence of toxic industry has incrementally altered the local environment has enabled the community in St. James to elucidate the peculiar terror of pollution.

Nixon (2011) called for us to find new ways "to devise arresting stories, images, and symbols adequate to the pervasive but elusive violence of delayed effects" (3; also see Fortun 2012). I suggest that these narratives, images, and symbols are already present within the communities affected by pollution, who through their lived experiences are able to slowly observe. Slow observations offer potential openings to "unsettle the intimate impacts of toxic exposure" (Bagelman and Wiebe 2017, 83). Slowing down observation might not produce radical political change, but—like other small acts of resistance (see Lora-Wainwright 2017; Pottinger 2017)—can contribute to achieving environmental justice. The situation in St. James has remained, thus far at least, one of many cases of undone environmental justice, but the gradual ways in which communities are able to harness slower temporalities and bear witness to the attritional violence of pollution provides space (and time) for counteracting necropolitical exclusion.

Notes

1. Notably, both Nixon (2011) and Mbembe (2003) draw on philosopher Fanon's (1963) treatise on colonial violence, *The Wretched of the Earth*.
2. The Toxic Release Inventory is administered by the EPA and tracks toxic releases in the United States based on the self-reporting of industry (EPA 2016).
3. At the time of research, the water supply in St. James was in violation of the maximum contaminant level for total triholomethanes, which are chemicals associated with various industrial processes. This information was obtained via a letter sent from the parish president dated April 2015.

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